

Tom Munson - Kennecott TRC meeting,10-30-01*M/35/002 NRDC*

From: Tom Munson
To: Mary Ann Wright; Wayne
Subject: Kennecott TRC meeting,10-30-01
CC: Joelle Burns

On October 30,2001, I attended a Technical Review Committee Meeting. Attached is the agenda and the list of attendees. The following issues are discussed as important information to follow regarding the treatment of the acid plume and the implications for mining and reclamation plan of the mine and tailing impoundment and pipeline. We will hopefully obtain a set of the overheads and a set of complete notes as a lot of information was presented and my notes are by no way complete.

Jon Cherry opened the meeting stating that the commitment to pump 2000 acre feet of acid plume water or Zone A water would be met by August 21, 2002. Approximately 1322 acre feet of water needs to be pumped to meet this commitment. This equates to a rate of 432 GPM and they are currently pumping 550 GPM. The goal is to ramp up this amount to 1200-1800 GPM acid plume water. They are currently sampling 320 wells for water level Spring and Fall and water quality in 96 wells. The first date that a report will come out is January of 2002, this report will be called the Final Preliminary Design.

The current volumes of tailings flowing through the pipeline is 40,000-60,000 gpm. Approximately 2500 GPM will be input from the acid plume and 1000 GPM from the Eastside collection system need to be treated. The current nanofiltration system is not working out due the cost being 6 times drinking water costs and as such, cost is making the company convert to a burnt lime treatment of the acid waters. The neutralization potential of the ore is different now then in the past due to mining a quartzsite ore versus limestone ore with more inherent neutralization potential. The mine closure plan will call for a stand alone lime treatment facility. The current addition of lime comes from the Copperton Concentrator which runs burnt lime in their systems to add flotation of the metals. The down side of adding lime is scaling of the pipeline with CaSO_4 or gypsum and as such **they will be replacing 12 miles of pipeline at the front end with a 84 inch HDPE pipeline (do we need an amendment?)**. For the short term they will be adding lime directly to the pipeline at approximately 200 tons per day. The lime will need to be added 24 hours per day versus the current 816 hours per day.

The current problem being when the mine was within the limestone bearing ores their neutralizing potential was aided by 150,000 tons of calcite and this equated to 30 tons CaCO_3/KT in the pipeline. Now that they do not have adequate potential acid neutralization at the splitter box where the acid neutralization is monitored, they will ramp up the lime slaking facility at the Copperton Concentrator due to the lack of Calcite. If necessary, they will install more capacity to treat the acid plume water with Burnt Lime if necessary which eventually means a PH level of 6.8 at the impoundment, the target PH. At the ultimate Acid Plume pumpage levels of 2500 GPM and 1000 GPM from the Eastside dumps and Cutoff trenches, a lime treatment facility will be necessary to treat the acid component. Aluminum and Iron are the most important components of the acidity problem and Aluminum Hydroxide is precipitated at a PH level of 6.

The tailings is being sampled from NOV. DEC. approximately 77 samples have been taken from trenches to be analyzed for Paste PH, Conductivity, and SOBEC Neutralization potential ? These samples are taken from 0-4 inches and 4-12 inches and 12-24 inches. Please see the agenda and list of attendees as an attachment.

PLS FILE JOELLE M/035/002 NRDC

KENNECOTT UTAH COPPER SOUTH FACILITIES REMEDIAL DESIGN

TECHNICAL REVIEW COMMITTEE (TRC)

OCTOBER 30, 2001

AGENDA

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|------|---|--------------|---------|
| I. | Introductions | Jon Cherry | 5 mins |
| II. | Review of Remedial Design Work Plan | Jon Cherry | 30 mins |
| | a. Extraction Program to Date | | |
| | b. Monitoring | | |
| | c. Modeling | | |
| | d. Preliminary Design Update | | |
| | e. Discussion/Questions | | 30 mins |
| III. | Tails Geochemistry and Scaling | Mark Logsdon | 30 mins |
| | a. Mine Plan and Neutralization Potential | | |
| | b. Review of Original Assumptions | | |
| | c. What has changed | | |
| | d. Lime Addition System | | |
| | e. Update on Geochemical Study | | |
| | f. Discussion/Questions | | 30 mins |
| IV. | RO Pilot Test Update | Helmar Bayer | 15 mins |
| | a. Testing of K60/109 Water | | |
| | b. Recovery, Stream Factor, etc. | | |
| | c. Concentrate Quality vs. UPDES limits | | |
| | d. Permeate Quality vs. DW Standards | | |
| | e. Progress of Preliminary Design | | |
| | f. Discussion/Questions | | 15 mins |
| V. | Water Rights | Brian Vinton | 15 mins |
| | a. Review Existing Water Rights | | |
| | b. Review Existing Water Uses | | |
| | c. Planned Extraction vs. Water Rights | | |
| | d. Discussion/Questions | | 15 mins |
| VI. | Schedule | Jon Cherry | 15 mins |
| VII. | Discussion/Action Items | Jon Cherry | 30 mins |

KUC TRC Meeting 10-30-01

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